

## **REMARKS**

Claims 1 – 16 are pending and under consideration in the above-identified application.

In the Office Action, Claims 1 – 16 were rejected.

In this Amendment, Claims 1, 2, 5 – 7, 10 – 12, 15 and 16 are amended. No new matter has been introduced as a result of this Amendment.

Accordingly, Claims 1 – 16 remain at issue.

### **I. Objection To Claims 5, 6 and 16**

Claims 5, 6 and 16 were objected to because of typographical errors. Applicants have appropriately amended these claims.

Accordingly, Applicants respectfully request that these claim objections be withdrawn.

### **II. 35 U.S.C. § 103 Obviousness Rejection of Claims 1- 16**

Claims 1-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishijima et al. (“Nishijima”) (U.S. Patent No. 6,263,151) in view of Ozue et al. (“Ozue”) (U.S. Publication No. 2004-0021982). Although Applicants respectfully traverse this rejection, independent Claims 1, 2, 7 and 12 have been amended to clarify the invention and remove any ambiguities that may have been at the basis of this rejection.

Claim 1 is directed to a magnetic recording head for a helical scan type magnetic recording/reproducing apparatus. The magnetic recording head comprises a multi-gap recording head formed by laminating “n” recording heads and having “n” recording gaps, the “n” being an integer greater than 2, wherein, the “n” recording gaps are wider than a track pitch and *partially* overlap each other in a pitched manner *in a width direction of the recording head* so as to record a pattern of juxtaposed tracks, and a gap for recording the last track among “n” recording gaps of the multi-gap recording head being wider than other gaps.

Thus, the claimed magnetic recording head has “n” laminated recording gaps that are wider than a track pitch and partially overlap each other in a pitched manner in a width direction of the recording head so as to record a pattern of juxtaposed tracks. Moreover, a gap for recording the last track among “n” gaps of the multi-gap recording head has a wider gap than other gaps.

Referring to Applicants’ Figure 2 as an illustrative example, Applicants’ claimed

invention comprises a multi-gap recording head 30 configured by laminating recording heads W1 to W4. Recording heads W2 to W4 have a core width CW equal to a track width TP augmented by  $\alpha 1$  so as to partially overlap by  $\alpha 1$  each other and the tracks formed by the recording heads W1 to W3. That is, the recording head W4 overlaps by  $\alpha 1$  recording head W2, which in turn overlaps W3 by  $\alpha 1$ , as do W3 over W2 and W2 over W1. In addition, the recording head W1 has a core width equal to TP +  $\alpha 2$  so as to project by  $\alpha 2$  outward of its track pitch TP, with  $\alpha 2$  being greater than  $\alpha 1$ .

This is clearly unlike both Nishijima and Ozue which fail to disclose or suggest a magnetic recording head with “n” recording gaps that are wider than a track pitch and overlap each other in a pitched manner in a width direction of the recording head so as to record a pattern of juxtaposed tracks, and a gap for recording the last track among “n” gaps of the multi-gap recording head has a wider gap than other gaps.

The Examiner asserts that Nishijima discloses that the “n” recording gaps overlap each other in a pitched manner and points to FIG.2 for support. However, upon further analysis of at least FIGs. 2, 3 and 4, recording heads 2 through 7 do not follow a pattern of overlapping each other partially in a pitched manner.

Further, the Examiner acknowledged Nishijima fails to disclose the recording head as being formed by lamination, but states that Ozue does for the purpose of multi-channeling and for effectively processing narrower tracks by pointing to Paragraphs 9 and 10 for support. However, Ozue states in Paragraphs [0073] and [0074] that (emphasis added):

“[0074] Further, a distance  $\omega 1$  between the two magnetic recording head elements 28 and 28 in a similar magnetic recording head layer 21 is formed to be  $\omega 1=3\ \mu\text{m}$ . As a result, the magnetic recording head element 28 on the left-hand side in the uppermost magnetic recording head layer 21 and the magnetic recording head element 28 on the right-hand side in the bottom magnetic recording head layer 21 *are positioned such that they do not overlap in the direction of lamination and that their edge lines on either side nearest to the other are linearly aligned in the direction of lamination* (see FIG. 2).

[0075] Accordingly, *all of the eight pieces of the magnetic recording head elements 28, 28, . . . , 28 in the magnetic recording head 20 thus constructed are ensured to be positioned without overlapping in the direction of lamination.*”

Thus, the references Nishijima and Ozue, singly or in combination with each other, fail to teach or disclose fail to disclose or suggest a magnetic recording head with “n” recording gaps that are wider than a track pitch and partially overlap each other in a pitched manner along a width direction of the recording head so as to record a pattern of juxtaposed tracks, and a gap for recording the last track among “n” gaps of the multi-gap recording head has a wider gap than other gaps.

Accordingly, Claim 1 is patentable over Nishijima in view of Ozue.

Independent Claims 2, 7, and 12 have been amended in a similar fashion as Claim 1. As such, these claims are also patentable over Nishijima in view of Ozue, as are their corresponding dependent claims for at least the same reasons.

Claims 5, 6, 15 and 16 recite that each of the reproducing heads has a head width which is 1/2 of a track width or less.

The Examiner states in the rejection of Claim 5 that Nishijima discloses this head width and points to FIG. 2 and column 6, lines 50 – 51 for support. However, upon examination of FIGs. 2 – 4 Applicants submit that the video reproducing head 3 measures 60  $\mu\text{m}$  and overlaps simultaneously both the audio track 9 and the video track 10. As such, Nishijima fails to teach or disclose that each of the reproducing heads have a head width which is 1/2 of a track width or less. Moreover, Ozue also fails to teach or suggest this claimed feature of Claims 5.

Thus, Claim 5 is patentable over Nishijima in view of Ozue.

Claims 6, 15 and 16, which recite the same distinguishable limitation as that of Claim 5, are also patentable over Nishijima in view of Ozue.

Accordingly, Applicants respectfully request that these claim rejections be withdrawn.

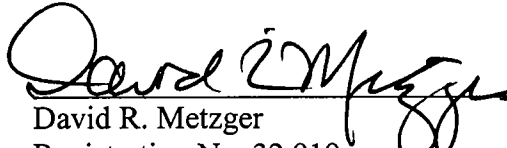
**III. Conclusion**

In view of the above amendments and remarks, Applicant submits that Claims 1 – 16 are clearly allowable over the cited prior art, and respectfully requests early and favorable notification to that effect.

Respectfully submitted,

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